

## Luigia Santella



Born in Marigliano (NA) on 10/02/1957

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**Current Position:** Research Director, Coordinator Morpho-Functional & Bioimaging Unit

**Current Affiliation:**

Section Biology and Evolution of Marine Organisms, Stazione Zoologica Anton Dohrn, Napoli (Italy)

### Education/Training/Experience

Institute and Location	Degree / Function	Year	Field of Study
University of Naples Federico II	Degree in Biological Sciences (summa cum laude)	28/01/1982	Biological Sciences
Cell Biology Laboratory, Stazione Zoologica Anton Dohrn	Research Fellow	1983-1988	Cell & Developmental Biology
Marine Biological Station, Woods Hole, Mass., USA	Visiting Researcher	1983	Neuroscience Research
Electron Microscopy Division, University of Ulm, (Germany)	Training Experience	1989	Ascidians Embryogenesis
Cornell University, New York, NY (USA) (In Vitro Fertilization Center),	Visiting Researcher	1991	Human <i>in vitro</i> fertilization
Department of Physiology of the University of Freiburg (Germany)	Training Experience	1997	Computer programs and confocal microscopy
Cell Biology Laboratory, Stazione Zoologica Anton Dohrn	Research Associate	1988-2004	Cell & Developmental Biology

Cell Biology Laboratory, Stazione Zoologica Anton Dohrn	Research Director	2004- present	Cell & Developmental Biology
Cell Signalling Laboratory, Stazione Zoologica Anton Dohrn	Head	2005-2008	Cell & Developmental Biology
Biology and Evolution of Marine Organisms Section	Group Leader	2015-	Cell & Developmental Biology
Morpho-Functional Analysis and Bioimaging Unit	Coordinator	2015-	Cell & Developmental Biology
Asamushi Research Center for Marine Biology, Tohoku University, Japan	Visiting Scientist	1993- present	Cell & Developmental Biology

### **Appointments and Memberships**

- 2015 Member of the Editorial Board of Biochemical Biophysical Research Communications
- 2015 Coordinator of the Morpho-Functional & Bioimaging Unit of the Stazione Zoologica Anton Dohrn
- 2014 Member of the Editorial Board of Zoological Letters, the official Journal of the Zoological Society of Japan
- 2014 Member of the Editorial Board of Zygote
- 2004-2009 Member of the Editorial Board for Physiological Reviews
- 2004 Member of Academia Europaea
- 2003-present ICRO/UNESCO Executive Committee Member

### **Invited Speaker at International Symposia, Congresses, and Advanced Courses (last 10 years).**

About 30 invitations to talk at International Colloquia and Symposia including some Gordon and FASEB Conferences.

### **Teaching activities**

Teacher at International Advanced Courses and Faculty Member of the International Institute for Collaborative Cell Biology and Biochemistry (IICCBB) since 2002.

Supervisor of Italian and OPEN University PhD students and Postdoctoral researchers.

### **Organization of Symposia:**

- 2013 International Symposium on The dynamically active egg: The legacy of Ernest Everett Just (held to celebrate the 130<sup>th</sup> anniversary of the birth of Ernest Everett Just), Naples, 13 May.
- 2009 Academia Europaea Annual Conference on Risks, Environment, and Sustainable Development, Napoli, Italy.
- 2004 EMBO Workshop on Calcium Signalling and Disease, Capri, Italy.

1997 First European Conference on Calcium Signalling in the Cell Nucleus, Baia Praelios, Italy. Reports on the Conference have appeared in *Cell* (92:17-23, 1998) and in *Cell Calcium* (22:313-319, 1997).

## **Publications (h index: 28)**

### *List of publications of the last 10 years:*

#### **Peer-reviewed publications:**

Santella, L. & Dale, B. (2015) Assisted yes, but where do we draw the line? *Reproductive BioMedicine Online*. doi:10.1016/j.rbmo.2015.06.013

Santella, L., Limatola, N., & Chun, J.T. (2015) Calcium and actin in the saga of awakening oocytes. *Biochem Biophys Res Commun*. 460:104-113.

Yazaki, I., Tsurugaya, T., Santella, L., Chun, J.T., Amore, G., Kusunoki, S., Asada, A., Togo, T., & Akasaka, K. (2015) Ca<sup>2+</sup> influx-linked protein kinase C activity regulates the-catenin localization, micromere induction signalling and the oral–aboral axis formation in early sea urchin embryos. *Zygote*. 9:1-21.

Lennarz, W.J., & Santella, L. (2014) Introduction. Fertilization and early development. *Biochem Biophys Res Commun*. 450:1133-4.

Chun, J.T., Limatola, N., Vasilev, F., & Santella, L. (2014) Early events of fertilization in sea urchin eggs are sensitive to actin-binding organic molecules. *Biochem Biophys Res Commun*. 450:1166-74.

Chun, J.T., Vasilev, F., & Santella, L. (2013) Antibody against the actin-binding protein depactin attenuates Ca<sup>2+</sup> signaling in starfish eggs. *Biochem. Biophys. Res. Commun*. 441:301-307.

Vasilev, F., Chun, J.T., Gragnaniello, G., Garante, E., & Santella, L. (2012) Effect of ionomycin on egg activation and early development in starfish. *PLoS One* 7(6):e39231.

Santella, L., Vasilev, F., & Chun, J.T. (2012) Fertilization in echinoderms. *Biochem Biophys Res Commun*. 425:588-94.

Santella, L., & Chun, J.T. (2011). Actin, more than just a housekeeping protein at the scene of fertilization. *Sci. China Life Sci*. vol. 54:733-743..

Chun, J.T., Puppo, A., Gragnaniello, G., Garante, E., & Santella, L. (2010). The biphasic increase of PIP2 in the fertilized eggs of starfish: new roles for actin polymerization and Ca<sup>2+</sup> signaling. *PLoS ONE* 5:e14100.

Kyozuka, K., Chun, J.T., Puppo, A., Gragnaniello, G., Garante, E., Santella, L. (2009) Guanine nucleotides in the meiotic maturation of starfish oocytes: regulation of the actin cytoskeleton and of Ca<sup>2+</sup> signaling. *PLoS One*. 4:e6296.

- Chun, J.T. & Santella, L. (2009) The actin cytoskeleton in meiotic maturation and fertilization of starfish eggs. *Biochem Biophys Res Commun.* 384:141-3.
- Chun, J.T., & Santella, L. (2009) Roles of the actin-binding proteins in intracellular  $Ca^{2+}$  signalling. *Acta Physiol (Oxf).* 195:61-70.
- Puppo, A., Chun, J.T., Gragnaniello, G., Garante, E., & Santella, L. (2008) Alteration of the cortical actin cytoskeleton deregulates  $Ca^{2+}$  signaling, monospermic fertilization, and sperm entry. *PLoS One.* 3:e3588.
- Santella, L., Puppo, A. & Chun, J.T. (2008) The role of the actin cytoskeleton in calcium signaling in starfish oocytes. *Int J Dev Biol.* 52:571-84.
- Kyozuka, K., Chun, J.T., Puppo, A., Gragnaniello, G., Garante, E. & Santella, L. (2008) Actin cytoskeleton modulates calcium signalling during the maturation of starfish oocytes. *Dev Biol.* 320:426-35.
- Moccia, F., Nusco, G.A., Lim, D., Kyozuka, K. & Santella, L. (2006). NAADP and  $InsP_3$  play distinct roles at fertilization in starfish oocytes. *Dev Biol.* 294: 24-38.
- Moccia, F., Billington, R.A. & Santella, L. (2006). Pharmacological characterization of NAADP-induced  $Ca^{2+}$  signals in starfish oocytes. *Biochem Biophys Res Commun* 348: 329-36.
- Nusco, G.A., Chun, J.T., Ercolano, E., Lim, D., Gragnaniello, G., Kyozuka, K. & Santella, L. (2006). Modulation of calcium signalling by the actin-binding protein cofilin. *Biochem Biophys Res Commun* 348: 109-14.
- Santella, L. (2005). NAADP: A New Second Messenger Comes of Age. *Mol Interv.* 5:70-2.
- Santella, L., Ercolano, E., & Nusco, G.A. (2005) The cell cycle: a new entry in the field of  $Ca^{2+}$  signaling. *Cell Mol Life Sci.* 62: 2405-2413.
- Santella, L., Lim, D. & Moccia, F. (2004) Calcium and fertilization: the beginning of life. *Trends Biochem Sci.* 29:400-408.

### **Book Chapters:**

- Santella, L., Limatola, N. & Chun, J.T. (2014). Actin Cytoskeleton and Fertilization in starfish Eggs. In: Sawada H, Inoue N, Iwano M, Eds. *Sexual Reproduction in Animals and Plants.* pp. 141-153. Springer Open ISBN: 978-4-431-54588-0 978-4-431-54589-7
- Santella, L., Chun, J.T. (2013). Calcium signaling by cyclic ADP-ribose and NAADP. In: Lennarz WJ, Lane MD, Eds. *Encyclopedia of Biological Chemistry.* pp. 331-337. NEW YORK: Elsevier Inc., ISBN: 978-0-12-443710-4.
- Chun, J.T. (2013). Intracellular Calcium Waves. In: Lennarz WJ, Lane MD, Eds. *Encyclopedia of Biological Chemistry.* p. 640-648, NEW YORK: Elsevier Inc., ISBN: 978-0-12-443710-4.

Chun, J.T., Santella L. (2007). Calcium and fertilization. In: Krebs J, Michalak M, Eds. Calcium: a matter of life and death. New Comprehensive Biochemistry, vol. 41, pp. 425-439, Amsterdam:Elsevier Science BV, ISBN: 978-0-444-80303-0, ISSN: 0167-7306, doi: 10.1016/S0167-7306(06)41016-4.

Santella, L. (2004). Calcium signalling: cell cycle. In: Lennarz WJ, Lane MD, Eds. Encyclopedia of Biological Chemistry. vol. 1, pp. 245-249, San Diego:Academic press, ISBN: 0124437109.